BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

PROCEEDING #18-11713 MARCH 14, 2018 2:45 P.M.

ALLOWABLE EX PARTE BRIEFING - ND-2018-5-E

SOUTHERN CURRENT LLC; CYPRESS CREEK RENEWABLES, LLC; ADGER SOLAR, LLC; NARENCO; ECOPLEXUS, INCORPORATED; OPDE GROUP; AND RENEWABLE PROPERTIES, LLC - Request for an Allowable Ex Parte Briefing Regarding Developments in Solar Independent Power Production in South Carolina

TRANSCRIPT OF ALLOWABLE PROCEEDINGS **EX PARTE BRIEFING**

COMMISSION MEMBERS PRESENT: Swain E. WHITFIELD, CHAIRMAN; Comer H. 'Randy' RANDALL, VICE CHAIRMAN; and COMMISSIONERS John E. 'Butch' HOWARD, Elliott F. ELAM, Jr., Elizabeth B. 'Lib' FLEMING, Robert T. 'Bob' BOCKMAN, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: Joseph Melchers, Esq.
General Counsel

STAFF: Jocelyn G. Boyd, Chief Clerk/Administrator; F. David Butler, Esq., Senior Counsel; James Spearman, Ph.D., Executive Assistant to Commissioners; B. Randall Dong, Esq., and David W. Stark, III, Esq., Legal Advisory Staff; Thomas Ellison and John Powers, Technical Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Colanthia Alvarez and Calvin Woods, Hearing Room Assistants

APPEARANCES:

RICHARD L. WHITT, ESQUIRE, representing **SOUTHERN CURRENT, LLC; CYPRESS CREEK RENEWABLES, LLC; ADGER SOLAR, LLC; NARENCO; ECOPLEXUS, INC.; OPDE GROUP; AND RENEWABLE PROPERTIES, LLC**

APPEARANCES [*CONT'G*]:

ANDREW M. BATEMAN, ESQUIRE, representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

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Note: For identification of any additional referenced materials and/or links for same, please see subsequent correspondence filed by the Office of Regulatory Staff.

Please note the following inclusions/attachments to the record:

- PowerPoint Presentation Slides (PDF)

P R O C E E D I N G S

CHAIRMAN WHITFIELD: I'll call this allowable ex parte briefing to order and ask our attorney, Mr. Melchers, to read the docket.

MR. MELCHERS: Thank you, Mr. Chairman.

Commissioners, we are here pursuant to a Notice of Request for Allowable Ex Parte Communication Briefing. The parties requesting the briefing are Southern Current, LLC,; Cypress Creek Renewables, LLC; EcoPlexus, Inc.; NARENCO; Adger Solar, LLC; OPDE Group; and Renewable Properties, LLC.

The hearing is scheduled for today, March 14th here in the Commission hearing room at 2:45, and the subject matter to be discussed at the briefing today is: Developments in Solar Independent Power Production in South Carolina.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Mr. Melchers.

I'll now turn it over to the South Carolina Office of Regulatory Staff – Mr. Bateman? – for some instructions.

MR. BATEMAN: Good afternoon, Mr. Chairman, members of the Commission. Thank you.

Some of my introduction will repeat a bit of

what Mr. Melchers just said, and so I apologize for the repetition.

My name is Andrew Bateman and I'm a staff attorney for the South Carolina Office Of Regulatory Staff. I have been selected as a designee to certify that today's allowable ex parte briefing takes place in accordance with South Carolina Code 58-3-260(C)(6). That statute sets forth certain parameters and rules under which this briefing must take place, and if you will indulge me, I'm going to go over a few of those.

Mr. Richard Whitt, representing Southern Current, LLC, Cypress Creek Renewables, LLC, EcoPlexus, Inc., NARENCO, Adger Solar, LLC, OPDE Group, and Renewable Properties, LLC, requested this allowable ex parte communication pursuant to 58-3-260(C). This presentation is limited solely to information noticed by the company, which was: Developments in Solar Independent Power Production in South Carolina. I therefore ask that everyone here please refrain from discussing any matters not related to what was noticed.

Secondly, the statute prohibits any participants, Commissioners, or Commission Staff from requesting or giving any commitment,

predetermination, or prediction regarding any action by any Commissioner as to any ultimate or penultimate issue which either is or is likely to come before this Commission.

Next, if I've counted my days correctly, a transcript of today's proceeding will be posted on the Commission's website by the end-of-day next Tuesday. Any document referenced or utilized today should be included with that posting.

Fourth, I'd ask the participants, Commissioners, and Staff refrain from referencing any reports, articles, statutes, or documents of any kind that are not included in today's presentation, to prevent the need from having to track down copies or links to these documents to include in the record.

I'd also note that none of the information contained in the presentation appears to have been marked or requested to be granted confidentiality, and I ask that the presenters refrain from referencing or discussing any confidential materials. This is a public briefing. And I ask that everyone please understand that, if the presenters decline to provide such information to questions here today. Please be understanding.

As a final note, please make sure to read, sign, and return the form you were given at the door when you came in today. This form needs to be signed by each attendee to certify the requirements contained in South Carolina Code Annotated 58-3-260(C) have been complied with at the presentation.

Thank you for your time, Mr. Chairman. This concludes my opening remarks.

CHAIRMAN WHITFIELD: Thank you, Mr. Bateman.

At this time, I'll now turn it over to Mr. Richard Whitt. Mr. Whitt, you've got quite a list here, so I'm going to let you get started.

MR. WHITT: Thank you, Mr. Chairman and Commissioners. And we certainly appreciate the opportunity to appear in front of you today. We also appreciate the assistance of Jo Wheat, who will have a lot of work to do in a quick period of time. We appreciate her help. We appreciate Andrew Bateman agreeing to appear today on behalf of ORS.

Mr. Chairman, if you will indulge me, I'd like to introduce some of my solar executives that are in the audience.

CHAIRMAN WHITFIELD: Yes, sir, go ahead, Mr. Whitt.

MR. WHITT: All right. Thank you. We have Aaron Halimi, from Renewable Properties. We have Logan Stevens, from OPDE Group. We have Steffanie Dohn, from Southern Current. We have Jesse Montgomery, from NARENCO. We have Nathan Clark, also from OPDE Group. And we have Tyler Norris, from Cypress Creek. And the other – our presenters will be introduced when we call the panel.

We want to call the first panel, Mr. Chairman, for 40 minutes. I'm going to try to note after 40 minutes is over, because our plan was to try to use 40 minutes for the first three panel presenters and questions from the Commissioners, and the second panel 30 minutes, to leave us at around 70 minutes. And, certainly, if the Commissioners have questions, we are glad to go beyond that, but we understand everyone had a long drive last night and a night hearing, so we want to try to hold it to that, if we can.

If you are ready, I can call the first panel.

CHAIRMAN WHITFIELD: Yes, sir, Mr. Whitt. Go ahead and call your panel.

MR. WHITT: Thank you. We've got Bret Sowers, from Southern Current. We've got Ben Snowden, who is an attorney. And we've got Dr. Ben Johnson, who

is our consultant.

[WHEREUPON, Messrs. Sowers and Snowden and Dr. Johnson came forward.]

And, Mr. Chairman, I need to put on the record, as I always have to, that we have more than several attorneys that are here today as subject matter experts or as officers of my solar clients, but none of these attorneys are participating as attorneys. They're not admitted in South Carolina, and they're not participating as attorneys, but only subject matter experts or officers.

CHAIRMAN WHITFIELD: Thank you. So noted, Mr. Whitt. Thank you.

MR. WHITT: So we have a three-member panel, and we will note after 40 minutes.

CHAIRMAN WHITFIELD: Mr. Whitt, I'm not sure — I guess, Mr. Sowers is going to go first? But what I'd like to do is, like you said, is let — I would like for all three of you panelists to do your presentation before we take any Commissioner questions. So, Mr. Sowers, if you want to lead off, that would be fine.

MR. BRET SOWERS [SO. CURRENT]: Great, thank you.

[Reference: Presentation Slides 1-2]

Mr. Chairman, Commissioners, thank you for this opportunity to speak with you once again in a forum like this and to discuss topics that are important to our company and the six other energy companies joining me here today. I believe, Commissioner Bockman, we haven't had the chance to meet before. Pleasure to be in front of you today.

My name is Bret Sowers. I'm principal of Southern Current, based here in South Carolina with, now, over 80 full-time employees, and serve as the company's Vice President of Development and Strategy. I also have the pleasure of serving as Chairman for the South Carolina Solar Business Alliance, whose membership includes a diverse group of over 50 companies throughout the solar industry value chain.

Today, our objective is simple: Express to this Commission the developments made in the solar industry in South Carolina, driven by policy improvements, regulatory action, and private-sector growth. Along with my colleagues, we will discuss certain impediments to future growth in our sector and ways in which the solar industry's well-positioned to continue supporting an improved, clean, and more reliable energy infrastructure in

South Carolina.

Diversity in our State's energy generation mix, along with increased opportunities for the private sector to provide low-cost energy and capacity needs are ways in which we believe we can minimize price volatility and risk to ratepayers, and respond to increased consumer demand for cleaner forms of energy at low cost.

Today, the solar industry employs nearly 3000 solar workers in South Carolina. Nationally, over 250,000 workers are now employed in the solar industry, with nearly 53,000 of those dedicated to the large-scale solar segment, which we represent today.

We've provided you copies of our presentation. We hope you will follow along and ask questions at any time.

[Reference: Presentation Slide 3]

This slide here, the companies represented here today have a broad experience and a large geographical footprint in the United States, spanning across 31 states. Each state market poses its own set of opportunities for the solar industry to provide solutions. Our combined involvement working with various state commissions and staff,

utilities, legislatures, corporate energy users, and large communities has helped us shape our overall presentation today. As developers and asset owners, our continued improvement in grid-interconnection technological advancement and project finance is leading to increased deployment of large-scale energy plants.

[Reference: Presentation Slide 4]

Large-scale solar plants provide many economic benefits to South Carolina. Our combined planned investment will be over $5.2 billion in South Carolina, leading to $780 million in new job wages and nearly $26 million per year in local property tax revenue. Our developments and assets provide many other benefits to South Carolina, its ratepayers, and the electrical grid. Rate stability is obtained through the deployment of our projects, through fixed long-term contracts and competitive avoided-cost rates. The construction and finance risk of our projects is borne by our companies and our financial partners, as we only receive payment for the energy we produce and not in advance.

Our companies recognize the need and privilege to give back. Contributions to workforce

development initiatives and support to charitable organizations in the communities in which we work are a few ways we hope to be a strong corporate citizen in South Carolina.

When constructing our facilities, often, grid improvements and modernization is required. This comes in the form of distribution and transmission infrastructure improvements, advanced metering and controls, and substation improvements. The cost to interconnect, along with these improvements, are borne by the solar energy company.

Other economic benefits are upstream and downstream supply chain, some of which are located here in South Carolina. Our segment supports a robust manufacturing base in the U.S., which supplies steel, aluminum, wire, transformers, inverters, and other electrical components to our projects.

As a transition to other presenters, I'd like to provide a brief layout of our presentation today. We will discuss interconnection impediments to project development, along with queue delays in progress, rate structures that support a more accurate valuation of the energy resource we provide, power purchase agreement nuances,

opportunities in new green tariffs, energy storage, and pending legislation. Thank you.

[Reference: Presentation Slide 5]

CHAIRMAN WHITFIELD: Go ahead, Mr. Snowden. Yes, sir, go ahead.

MR. BEN SNOWDEN: Thank you. Thank you, Mr. Chairman. Good afternoon, Mr. Chairman, Commissioners.

My name is Ben Snowden. I'm an energy and environmental attorney with Kilpatrick Townsend in Raleigh, North Carolina. My energy practice focuses on representing independent power producers in regulatory and contract matters. Most of my clients are developers of solar plants that are Qualifying Facilities under the federal PURPA statute. It's the Public Utility Regulatory Policies Act. Probably, you've heard of that one. I represent clients doing business in South Carolina and North Carolina, and in many other states throughout the U.S. I've also represented solar industry associations on regulatory issues both here and in North Carolina.

I was privileged to appear before this Commission last year in the allowable ex parte proceeding that was requested by the Solar Business

Alliance, where I talked primarily about regulatory issues of concern to the solar industry. I'm happy to have the opportunity to talk to you all again today about another issue that's of very serious concern to developers, and that issue is interconnection.

[Reference: Presentation Slide 6]

Right now, in South Carolina, the single biggest challenge to developers of utility-scale solar projects – the single biggest area of uncertainty – is getting interconnected to the electric grid.

Now, actually building a solar project doesn't really take all that long. You can accomplish that construction in, you know, a matter of months. But getting interconnected to the grid can take a lot longer, can take years, and interconnection is the single longest phase in the lifecycle of a solar project. And the amount of time that interconnection takes is almost entirely out of the developers' control. So when I talk about uncertainty, I'm talking about not only the costs of interconnection, the costs which – as Mr. Sowers mentioned – are borne by the developer, I'm also talking about uncertainty about time and how long

it takes to get interconnected.

The federal PURPA statute I mentioned requires utilities to purchase the output of Qualifying Facilities, and it also requires utilities to provide interconnection services so that those purchases can be made. But the jurisdiction to supervise those interconnections is in your hands, in the hands of the state commissions.

About two years ago, this Commission approved a new set of interconnection procedures for projects in South Carolina, and those standards were agreed on by a group of stakeholders, including ORS, the utilities, and the solar industry. And they were, as I said, approved by this Commission.

[Reference: Presentation Slide 7]

Now, those interconnection procedures set out the steps for studying interconnections and also set out timeframes in which utilities are supposed to get that study work done. So, under those timelines, from the time an application for interconnection is submitted to when an interconnection agreement is issued should take about 260 business days for a project that's trying to interconnect to the distribution grid, and about

280 days for a project that is being interconnected to the higher-voltage transmission grid.

When we were here for the allowable ex parte last year, Mr. Sowers reported on the current status of the interconnection queue backlogs, and he reported that at that time the actual timeframes for interconnecting projects in South Carolina were running more than a hundred or so business days behind those timeline standards. I'll save the details; we do need to get into those, but suffice it to say that, in the last year, it has not gotten better. Interconnection timelines on the whole have gotten longer and the backlog of projects has gotten bigger – though I will observe that SCE&G is doing reasonably well hitting its marks on interconnection times.

Many of my clients have also seen very significant increases in interconnection costs over the last year. But my primary purpose here today is not to complain about delays in interconnection. What I do want to do, though, is talk a little bit about consequences of delays, because they can be very severe for projects.

So, one consequence of interconnection delays relates to the eligibility of specific projects for

the standard-offer rates in contracts for small Qualifying Facilities, those projects that are 2 megawatts and under. Those rates expire on January 1, 2019. That's 30 months after those rates were approved by the Commission, so this is sometimes referred to as the 30-month rule. So, even if you have a — when I say they expire, what that means is, even if you have a project that qualified for those rates and has done everything it needs to, it's done it all by the book, if that project can't go into operation by January 1, 2019, it loses access to those rates. It's not eligible; it has to kind of go back to the drawing board and get a new PPA, get new rates, which are probably going to be substantially lower. And a significant portion of the small utility-scale solar projects in South Carolina are subject to that deadline, which is really just around the corner. At the rate things are going, many of those projects, if not most, are not going to get interconnected in time to meet that deadline, as it's currently set out in the tariff.

A related issue has to do with negotiated contracts to sell power to utilities. Those are usually for bigger projects. Some of those

contracts include hard deadlines for achieving commercial operation. So if you don't meet the deadline, you may have to pay really significant, very significant liquidated damages, or the utility may be able to cancel that contract. And one might think that those contracts with those deadlines would include provisions that allow the deadline to be extended, where interconnection is the only reason the project can't go on-line in time, but very often those contracts don't include that kind of provision. So in either situation, you have a developer that may have followed all the rules and lived up to its responsibilities, but, because it cannot get connected in time to meet these deadlines, it loses its PURPA rights. So that's a very serious issue.

[Reference: Presentation Slide 8]

Now I'd like to turn to another issue, and this is the technical screens and study methods that get used in the interconnection process. Now, I'm a lawyer, so I'm not capable of getting too technical, so don't worry about that. But the most time-consuming part of the interconnection process is what's called the system impact study. So the system impact study is the part of the process

where the utility assesses, studies the impacts of the project, or the potential impacts of the project to the grid: What's going to happen if someone builds this project as it's designed? And projects are studied under several sets of conditions, right? What are the impacts during high-load scenarios, what are the impacts during low-load scenarios? What happens if, you know, a tree falls down and cuts the line, what's going to be the impact of having this project? What are the problems that can arise, and what can be done to address those problems or prevent them?

So the system impact study is performed by the utility's engineers, and the utility has to make a lot of judgment calls when it's performing that study. So what kind of tests are applied, you know, how rigorous are those tests, you know, what are the kinds of conditions that you want to test under, you know, what kind of solutions get considered or are on the table to address those problems?

The system impact study is actually necessary; it's required by the procedures. But the choices that are made by the utility about how to conduct the study can have a huge impact on the time that's

required to perform the study and on the ultimate outcome. I think of it a little bit like building codes inspections. Everybody understands they're necessary, but they can also be unreasonably restrictive. So, if you are, you know, building a house on Folly Beach, it's probably pretty reasonable for the building code to require that house to be able to withstand, you know, 140-per-mile-an-hour winds, or 150-mile-per-hour winds, and maybe be limited in height to 35 feet, say. And that's probably pretty reasonable. But is it reasonable for the building codes to require the house to withstand, you know, 300-miles-per-hour wind? Can you even build a house like that? You know, what if the building code limits the height to 20 feet? Is that reasonable? And each inspection that has to happen sort of adds incrementally to the costs of the house and the time that's required to build the house. And if you want to keep anybody from building houses on Folly Beach, it's not that hard to adjust the building code to make it so it's just uneconomical to build a house there.

So a problem that arises is there's very little transparency as to what the technical study

criteria are that the utilities are using in these interconnection studies: What are the policies? To the extent that there are consistent procedures, they're not published or otherwise made available to developers when those developers are planning and designing their projects, which is when you really need to know about the policies, because if you know what the technical requirements are, if you know what the conditions are at specific points of the grid, you can make a reasonable call about, you know, whether it's a good idea to build a plant of a certain size in a certain place. Without that information, it's very difficult to make informed decisions.

Unfortunately, that information is just, you know, not really available when it's needed. What is even more problematic is that changes have been made to these technical policies that have been applied not just to new projects coming into the interconnection queue, but have been made to projects that were already in the queue — sometimes had been in the queue for months or years or, you know, longer than they should have been. And there have been several instances, over the last two years or so, where a utility has introduced a new

technical policy that has made the interconnection standards effectively much more stringent. And, again, these were introduced with respect to, you know, all projects in the queue that had not finished the system impact study phase. To go back to our, you know, building code analogy, it's as though you had submitted your building plan for approval, it was supposed to come back in six weeks. Fourteen weeks later, you know, the code department comes back and says — or inspection people come back and say, "Sorry," you know, "we've reduced the — or, increased the setbacks or reduced the maximum building site. I'm sorry, you can't build your house this way."

So, what is the impact, or what has the impact of these changes been? For some projects, the screens have been applied and the result is, "Sorry, you can't build your project here," or, "You can't interconnect your project here." Or, "If you do, you've got to build a $5 million transformer to interconnect here," or, "You've got to cut the size of your project in half or," you know, "by 75 percent." And even when the impacts haven't been quite that drastic, it has been the case that they've been — the economic impact has

been enough to make the project nonviable, so the projects have been withdrawn from the queue. And that really has happened to quite a lot of projects. And for almost all projects, even those that haven't really been negatively impacted economically, the additional studies have significantly increased the amount of time it takes to perform the system impact study, and this has made the interconnection backlog even worse.

Although the solar industry has been informed of these changes, you know, in most cases the utility has not been receptive to the industry's input on the policies themselves or on the potential strategies for dealing with the concerns that were raised by the studies – which is a shame, you know, not only because this, in my view at least, has undermined the relationship between the industry and the utilities, but also because it shuts down a lot of potential innovation that could result from a more collaborative working relationship.

The companies that are represented in this room here today, they have a lot of collective technical expertise. They're doing business with utilities all over the country, and they have a lot

of good ideas for addressing safety and reliability concerns that may come with interconnecting more projects to the grid. Some of these solutions, like smart inverters, you might've heard of, are already in widespread use elsewhere, but the utilities here have not been particularly receptive to them.

[Reference: Presentation Slide 9]

So one final issue that I want to bring to your attention, that relates to interconnection, is the North Carolina Competitive Procurement for Renewable Energy Program. Some of you all may have heard last year the North Carolina Legislature passed a bill called HB 589 that requires Duke to procure 2660 megawatts of new renewable capacity over the next four or so years. Why am I telling the South Carolina Commission about this North Carolina law, you may ask. And the reason is that, in Duke's South Carolina service territories, projects in those territories may bid into the North Carolina program and may win contracts through that.

What does this have to do with interconnection? The current interconnection backlog is a problem. At the rate things are

going, it may be that not very many projects in South Carolina will be far enough along in that interconnection process to effectively and competitively bid into that CPRE Program. The industry and Duke have had discussions, ORS has had discussions in the past, about possible ways to address this, possibly special interconnection procedures to deal with this issue. We have not reached consensus. The solar industry has a lot of concerns about – well, we have not reached consensus on a proposal, but you may see some proposals come to you at some point in the near future.

The most important take-away that I have, the biggest concern I think for the solar industry, is just that any changes that are made not have a negative impact on projects that are already under development in South Carolina.

Thank you so much for your time.

[Reference: Presentation Slide 10]

DR. BEN JOHNSON [BEN JOHNSON ASSOC'S]: Good afternoon. Thank you for having me back. You may recall I was here a year ago during a similar presentation.

I'm an economist, and I'm going to sort of

change the tone just a little bit from being mired in the difficulties of the moment to talk a little bit about being more forward-looking. My focus is going to be on the part of regulation that affects this industry in terms of the rates that are paid, the revenues that these companies receive.

Let me start by trying to point out something that I'm sure you're aware of but maybe don't think that often about, that these companies are kind of unique in that, on the one hand, they have to have a very close working relationship with the incumbent utilities on matters like interconnection and, in effect, in some sense, the incumbent utilities are their customers, because that's who is the mechanism by which their power reaches ultimate users. But in another very important sense, they are independent power producers, and that word "independent" gets to the essence of what Congress had in mind, which was to create a class of competitive firms out in the states who would bring sort of a separate viewpoint, a separate perspective, on the electric industry. It kind of created a carve-out and said, you know, all those states continue to have incumbent monopolies that control the grid and have the bulk of the

investment in generating units. What Congress did was allow an opportunity for small companies to be more innovative, as long as they stayed small, and any one project had to be 80 megawatts or less, about a tenth of the size of a typical large base-load plant, and, in fact, most projects that these companies actually build are quite a bit less than that, more like 20 megawatts or even 5 megawatts.

As long as they're small, they have an opportunity to sell as much power as they want and develop as much energy capacity as they want, as long as they're paid at an amount that won't harm customers over the long run. In essence, they get in the front of the line and can build plants and produce energy using specified technologies — basically, hydro, solar, wind, other types of renewable energy like recycling, burning trash, things of that sort.

Solar, in particular, has been an opportunity that's been there for many years, and around the world it's been growing, but in the United States, other than a relatively small number of places where mandated programs or procurements have occurred, by far the greatest penetration has occurred in locations like South Carolina and North

Carolina that have taken advantage of this opportunity under Congress that basically allows small developers to come in and build competing generating sources to generate power. And their business model's potentially very flexible; they'd be very interested in selling directly to customers, transferring their power across the grid to large users like Google, and the like, where they are given the opportunity, but the basic entry point is this opportunity under PURPA to sell power at what is called avoided cost.

The key thing to keep in mind is that they are, in effect, competitors of the incumbents, so to the extent the typical process is one in which the incumbent utility kind of decides what the rules of the game are and decides how many plants should be built and where and what technology to use, this is kind of a very special case exception, because Congress basically says let these innovative companies take the risk, let them try to build things, and they're just capped at the amount that the incumbent would have spent if they had built their own plant and operated it.

And as I say, this is a chance to be kind of forward-looking. It's an interesting contrast to

the earlier part of the day when I watched you work through a series of fairly routine filings that needed to be approved. This is a chance for you to start thinking big picture, do you want South Carolina to, in fact, be forward-looking and an innovative state that shows what can happen? You already have more interest and innovative ideas and entrepreneurial energy happening in the solar industry in South Carolina than a state like Florida that has a lot more solar, but Florida has not been using the PURPA process in the same way. They tend to be more procurement-oriented, where the incumbent goes out and gets bids and builds and owns solar plants on kind of a bureaucratically decided basis. They decide how much solar to have, and then the incumbent builds it, and customers are responsible for the cost.

What's happening in South Carolina is very different, because the customers are not taking any of the risks, and all they are paying is the equivalent cost of what the incumbent would've spent. To the extent these firms lose money because they are betting on the technology being cheaper than it actually turns out to be, that's their problem. They get contracts for, say, 15

years, but they're still taking all the risk of what happens in the remaining years after that 15- or 20-year initial contract. The plant will probably last 30 years, might last 35 — we're just not sure, because the technology is fairly new. They are taking that risk. They have to decide how much they can afford to guess they're going to get on the back end. And that's very different than the way the incumbent would do it. If they build a coal plant, they expect it to last 40 years. If it's obsolete after 20 and really shouldn't be run anymore, the ratepayers still pay for it and they continue to pay for that cost even though it didn't turn out right.

[Reference: Presentation Slide 11]

So, the thing to keep in mind here is that a key piece in this whole puzzle is the tariffs that you approve for what's called QF rates.

[Reference: Presentation Slide 12]

The methodology is basically set by FERC, and it's still valid. It's called the avoided-cost methodology, and it's fairly flexible. But what is needed are some updates and improvements in how we apply that methodology. And I'm not going to try to get too specific here today. I understand this

isn't the time or place to do that. I'm just trying to give you a sense that there are opportunities and there are pitfalls in front of us at this point, as the solar industry grows, and the potential — we're talking about billions of dollars in investment that's ready to come into South Carolina and, again, with no downside risk, no upside in terms of cost to customers. But that opportunity is not going to materialize if they can't get interconnected, and it's not going to materialize if all the rates are suddenly changed or there's a lot of uncertainty that people can't figure out what their revenue stream's going to be. The — and what I want to point out is, again, forward-looking, there are some issues that are arising both nationally, internationally, and here in South Carolina specifically, that really would call for improving and refining the process.

[Reference: Presentation Slide 13]

Specifically, we've got changing industry conditions. There's a number of them. I don't have time to go into all of them, but, again, I've hinted at it. You have coal plants that are no longer as efficient to operate as they once were; they're not as cost-effective as they were expected

to be. A big one that you're going to hear about in the news is the fact of growing importance of solar. And that's certainly — if South Carolina is going to be one of the leading states for producing solar, both for your own needs and potentially exporting it to adjacent states that aren't as friendly to solar, then you've got to recognize there's technical characteristics to that and you have to update the avoided-cost calculations and the tariff process to avoid problems that result from having a lot of solar on your system that we haven't dealt with in the past.

But there's also technical changes right on the horizon that are being used on other continents — Europe and South America — and starting to be used in America, like solar plus storage, which is a perfect solution to many of these problems. We talked about smart inverters. Similarly, you can put a certain amount of storage right next to a solar plant. You can be drawing power off the sun and putting it into that battery in the heat of the day, around noon — which is not the absolute maximum time when people use power because things tend to slow down during the lunch hour — and then you can use that power later in the afternoon or in

the beginning of the evening, as the sun is starting to come down but houses are still hot, the air conditioners are still running. There's a kind of a critical hour at about 6 or 7 o'clock when it's the perfect time to pull solar power back out of the batteries and send it back out to the grid. Once that battery is there, you have the potential to use it again in the morning to anticipate even before the sun comes up, if you pull it out of the grid off of some of those older coal plants or other sources that might otherwise be underutilized late at night. With proper price signals, you could be filling that battery off the grid. Under PURPA, that's perfectly legitimate. You're supposed to have the right to buy and sell at wholesale.

So the opportunities are there, but the concerns are there. I also want to mention a potential for older, costly generators. The existing utilities, incumbents, are tending to not want to talk a whole lot about them, because it's a bit of an embarrassment for them. But it's not their fault; the reality is, all through the country we have coal plants that probably should've been retired at age 30 or 35, but they're still

sitting there at age 38 or 40, and they're very costly to maintain, costly to keep available. Properly handled, that is one of the things that you'd be looking at, saying, "Well, maybe we should accelerate the process of switching over to solar, and perhaps retire some of those plants. Or perhaps, in some cases, no, but change the way we use them, and use them only during certain parts of the year when the need is greatest."

[Reference: Presentation Slide 14]

The essence of what is needed – again, trying to keep this at a very high level – is we need more granular rates. We cannot continue to have QF rates that are as simple as – or virtually as simple as – the ones that the average house uses. It does not make any sense. If you have a $100 million investment and you've got millions of dollars' worth of revenue going on, it does not make sense to assume that the producer of that energy, the independent power producer, is incapable of understanding a price that's changing every 15 minutes. It does not make sense to assume they're incapable of understanding there is a difference between a very hot summer day when everybody knows all the air conditioners are

running and that power's very valuable, and a cooler day with a thunderstorm. Why not give them a proper price signal that recognizes those differences? Again, it's not that they are not capable of adapting and reacting and building investments, long-term investments, based on very precise price signals; the problem is that the incumbent utilities have had no incentive to produce those price signals. And I'm not putting any kind of criticism of any specific utility or the utilities here in the State. This is a problem nationwide. They're very slow to adapt and get more precise about things.

You have things like winter peaks in early morning that are only a few times, a few hours, of the year, sometimes only a few years out of every decade. It obviously does not make sense to build an entire peaking plant or to design all your rates around that problem of just a few hours a year, when the correct response is something like demand response, where you basically have your major manufacturers be willing to be interruptible. Give them some notice that, "We're going to have a cold snap. We have a polar vortex." Shut down the plant for a few hours in the morning, and give them

a reward for that that's very significant to their bottom line but it's still a lot less than what it costs to have a peaking plant. That kind of precision is needed, and it's similar to this question of storage. If storage with solar will work, if you have the price signals, if a solar developer knows that, by adding storage, every couple of years he's going to be paid a real big premium for having that energy ready early in the morning before the sun comes up, when it's needed — but if you just give him a bland price signal that ignores that phenomenon, then he's not part of the solution and that opportunity for innovation doesn't take place.

[Reference: Presentation Slide 15]

So, more specifically, where the need is — again, forward-looking — is we need hour-by-hour differences in avoided cost. There's no reason not to be presenting that to you, presenting that to ORS, and to be using that in the actual tariff. The underlying modeling that's been done for years is on an hour-by-our basis, but it's never presented to you. And it's generally not presented to myself as a consultant or the other independent power producers around the country, who could be

looking at that information and understanding, "Okay, what are the trade-offs? How much storage should I associate with this solar plant?" If they can see the hour-by-hour differences, they could start planning ahead. And if we put that into the tariff, then they'll have opportunities to respond to that.

I mentioned weather-related differences. In particular, we ought to give solar credit for the intuitively obvious notion that solar tends to be producing a lot during the hottest days, when it's most valuable, but we tend to ignore that. There's no weather component being broken out in a typical avoided-cost development. There's no recognition of the fact that there is a correlation between solar output and customer need, in terms of air-conditioning load.

In terms of coal ramping, it's fairly technical but it's a very important issue that's starting to be more and more important, as solar increases and as coal is no longer as effective. Coal plants that were intended to be used as base-load plants are now being used as cycling plants. It's not what they were designed for, but that's just the reality of low natural gas costs per MBtu

and better heat rates that the natural gas plants have. So there are optimal responses, but I'm not seeing, as an industry, the responsiveness we need. And what I'm suggesting to you, as regulators, is you can encourage the industry to actually study the optimal response and create an opportunity for innovative solutions. Again, solar plus storage is the one obvious example I can point to. With storage, it becomes part of the solution to that ramping problem. The ramping problem, in essence, is that the coal plants are very slow to increase their amount of power and they're slow to reduce the amount of power.

There's other things. The existing pumped storage needs to be used more effectively to deal with that. And properly paired with solar, it's an excellent bridge to the future. Until storage becomes more widespread, simply using existing pumped storage facilities to help take — concentrate the output during the late afternoon or early evening as, again, I mentioned people are coming home, the building hasn't yet cooled down so there's still a fair amount of usage, but the solar is no longer producing. It's a perfect time to be using pumped storage. And pump during the middle of the

day when the solar is at its max. If you had the proper price signals, the existing owners of that pumped storage, the incumbent utilities, would have the incentive to operate it in the logical way that I'm describing.

There's also opportunities in wholesale markets. There's a hydro plant in North Carolina that is in the wholesale market; it sends its power to PJM, currently. It's a perfect opportunity to give them a premium price in the early morning and a premium price in the late afternoon, in conjunction with solar. But they have to get — wheel the power into South Carolina. It's a fairly short distance. There's no price signal, there's no incentive for them to do that. It's easier for them just to go into the PJM market where they are given a reward that is somewhat responsive to those characteristics. But there's, in essence, an arbitrage opportunity because South Carolina has more solar than the PJM market, places like New Jersey, that the value of power at the noon hour is going to be cheaper, so that hydro plant shouldn't be running at noon. It simply doesn't make sense. It should save its power and then use it in the late afternoon, when the value is there. But,

again, it takes a proactive effort by the regulators to encourage the kind of environment where people start thinking about these things and actually optimizing the overall portfolio and creating opportunities for innovative thinking.

Similarly, you've got other existing plants that exist, that could be given the proper signals to change the way they're dispatched, and instead of selling their power up into PJM sort of on a blanket price, give them an incentive to produce power again when we need it the most, and then the balance of the time, they'll take their chances on what they get in the PJM market. You're just giving them a small premium but all of a sudden it becomes very attractive, but, again, no one's doing that, no one's offering it. There's no mechanism to encourage that activity. The mind set on the incumbent utilities everywhere, including —

MR. WHITT: Dr. Johnson, excuse me. I apologize profusely.

DR. BEN JOHNSON [BEN JOHNSON ASSOC'S]: Sure.

MR. WHITT: If we're going to keep to our promises that we made, could you go ahead and conclude?

DR. BEN JOHNSON [BEN JOHNSON ASSOC'S]: Fair

enough. I appreciate that.

Anyway, what we need is — let me move to my last slide.

[Reference: Presentation Slide 16]

Here we go. — we need updates and improvements. The need is real. I'm sorry for going a mile a minute. I just get excited about all these opportunities I see, looking forward. The industry wants to help. They want to be part of the solution, not part of the problem. But we need a process that's open, that's transparent, and that's collaborative. And that's part of the theme you heard a moment ago, in terms of the interconnection process.

It needs to be more collaborative. The solar industry needs to have more of a seat at the table to help solve these problems and help the State grow and help the State take advantage of its opportunity of being here in the South where solar energy is so abundant.

So that's the essence of what I'm saying, and I appreciate your time, and I apologize for running a bit late.

Questions? I think this is our opportunity for this panel.

CHAIRMAN WHITFIELD: I'd like to thank you, Dr. Johnson, Mr. Snowden, and Mr. Sowers.

And Mr. Whitt, thank you. I do want to keep on the schedule that you mentioned from the beginning, for a lot of reasons but also for our court reporter, as you mentioned, who had a late night with us last night.

So I will, at this time, just take a brief minute for any questions before we let this panel step down. Commissioners, are there any questions that any of you really feel a burning need to ask of this panel before we let them step down? Commissioner Bockman, if you have one, go ahead, because —

COMMISSIONER BOCKMAN: One question.

CHAIRMAN WHITFIELD: — because we're about to let them step down, so go ahead, Commissioner Bockman.

COMMISSIONER BOCKMAN: Let me ask Dr. Johnson, on your next-to-last slide, "Rates and Improvements: QF Rates Should Accurately Reflect Subtle Nuances," are there places where you might direct us where these things have occurred?

DR. BEN JOHNSON [BEN JOHNSON ASSOC'S]: I'm not aware of any state that is being as aggressive

as I think that I'm talking about what is needed. I think the opportunity truly is these green-field opportunities here. The specific concepts, they're studying them in great depth in a state like New York, but it's a very bureaucratic process and I wouldn't point to it as a success story, necessarily.

COMMISSIONER BOCKMAN: Thank you, Dr. Johnson. And thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Bockman.

Commissioner Fleming.

COMMISSIONER FLEMING: Yes.

Thank you very much for being here. I wish we had more time than we have. I heard a lot of uncertainties that's going on locally, meaning North Carolina and South Carolina, and how the two states are impacting each other. Could you talk a little bit about, though, how the rules are changing? It seems to be that it's constantly changing, rather than being consistent, so that you're having a hard time holding on. And, also, the impact of the HB 489[sic], the amount that's being required in North Carolina, how that's impacting – if it is impacting – what's happening in the queue

in South Carolina.

MR. BRET SOWERS [SO. CURRENT]: Thanks for the question. I'll lead off and I think probably Ben Snowden may be best to finish, I think.

To address why we've talked about it a lot here today, on the uncertainty issue — and I think I brought this up in the previous ex parte — as small power producers, to enter into the interconnection process, it costs a fee; we have to spend money to enter into the process and then, during that process, we have to continue to invest in permitting, in local development, additional study timelines. And all that is cost incurred in a process, but we go into that process knowing what the set rules are. So in this case, in South Carolina, the South Carolina Interconnection Standard is what we look to before we go invest $10,000 into just submitting a project.

When the rules are changed or adapted or moved as we're in that process, I then, as an owner of a company, may say, "Well, I would've never spent that $10,000." Or in most cases, on an average system, we're spending between $50,000 and $150,000 before we ever get to a process where we actually get to build a project.

I'll leave it at why the uncertainty is huge for us. And why that causes a lot of problems: Our company, in particular, has over 100 projects in South Carolina, in the interconnection queue, and add that by the thousands and thousands of dollars for each project.

COMMISSIONER FLEMING: But who is changing those rules, is what I —

MR. BRET SOWERS [SO. CURRENT]: Yeah, and I'll address that for Ben Snowden.

MR. BEN SNOWDEN: Thank you, Madam Commissioner, for the question. The actual interconnection procedures that were approved by the Commission, those have not changed, but they set out the procedures, the process, the timelines. And they, you know, with respect to the system impact study, they say the purpose is to study the electrical — the system impacts. They're sort of at a very high level about what you should study, conceptually. There are references to specific industry standards that are in, I think, it's Appendix 5 to the procedures. But the procedures themselves don't say, you know, "Thou shalt study Issue A, Issue B." You know, "You have to study voltage change and flicker," and, you know, all

these different things. They're not that granular. It's the utility's own policies that are changing, and so they have the effect of being – they're like regulations, only, you know, regulations go through notice and comment and have to be published and things like that. I mean, they have the impact of regulations, but there's not really oversight of those policies. The policies aren't – they're not public and they're not made available.

So that's what has changed. And I'd say that those changes have been rolled out in a way that has sort of blindsided the industry, and we just haven't really known what the rules are until we get to the point of being affected by them, and then they get changed again. So those are the changes. They're not the actual interconnection procedures; they're the utilities' policies.

COMMISSIONER FLEMING: So it's coming from the utilities.

MR. BEN SNOWDEN: Yes, ma'am.

COMMISSIONER FLEMING: And they're doing it in a way that's not collaborative.

MR. BEN SNOWDEN: That would be my view of it, yes. And we are not – we don't disagree with the notion that impacts have to be studied. I mean,

these are – the utilities have to operate the grid in a safe and reliable fashion, and there's a need to study things. But we do have differences with regard to whether these policies are all technically justifiable, but I think, more specifically, it is about how those procedures have been rolled out.

COMMISSIONER FLEMING: Okay. So it's a result of the studies that the utilities do.

MR. BEN SNOWDEN: Yes, ma'am.

COMMISSIONER FLEMING: And could you talk about the impact of the HB 489[sic] on South Carolina?

MR. BEN SNOWDEN: Yes, ma'am. So, it's – I wouldn't say so much that it's impacting the South Carolina queue right now. So it's a competitive procurement process that's about 45 months to get to an obligation. And any project in North Carolina or in South Carolina, in the service territory, can bid in.

You know, there may be more projects going into the queue in North Carolina, you know, along the border, that might be electrically connected with projects in South Carolina, but that's not the impact. What I was referring to is that there will probably need to be – well, if there are not

changes made to how the queue in South Carolina is being handled, there's just not much progress being made in interconnection and the first tranche of the CPRE Program, the first group, it's going to be the summer when the bids have to come back. So you can't really bid into that process effectively, if you haven't gotten your study. You don't know what your costs are going to be, if they're going to be zero or $5 million. Developers have to price their bids, so they need some information.

So unless there's some process for getting that information in a more accelerated fashion, then the scope of projects is going to be narrower. And that may be fine. We have been discussing with Duke the ways to get that done. But I think it's just very important to the industry that, you know, whatever – if there are any changes that are approved by the Commission, since it's up to you guys to approve any changes, those changes need to recognize that there's already an existing queue of projects, a huge queue of projects, that's already in line to get interconnected, folks who have been playing by the rules, and that any change should not negatively impact those projects that are already in the queue and have, you know, relied on

the existing rules to get interconnected.

Does that answer your question, more or less?

COMMISSIONER FLEMING: It's helpful.

MR. BEN SNOWDEN: Thank you.

CHAIRMAN WHITFIELD: All right. Thank you, Commissioner Fleming.

Commissioner Hamilton, you don't have a question, do you?

COMMISSIONER HAMILTON: Yes, just a short one.

CHAIRMAN WHITFIELD: Yes, sir. Go ahead.

COMMISSIONER HAMILTON: I think I'll send this one to Mr. Sowers. When the solar bill was passed, the alliance was formed, and the thought by the Commissioners was a lot of the things that we've talked about today would be handled within the alliance. I'm just wondering, what's happening with the alliance? Tell me where you are.

MR. BRET SOWERS [SO. CURRENT]: Sure. Are you specifically talking about the Solar Business Alliance that I represent?

COMMISSIONER HAMILTON: Yes, sir.

MR. BRET SOWERS [SO. CURRENT]: Yeah? And you're referencing Act 236, in 2014?

COMMISSIONER HAMILTON: That's right.

MR. BRET SOWERS [SO. CURRENT]: Okay. So,

that legislation did a lot, I think, to jumpstart the industry here in South Carolina. Where I think some of these issues are arising is that program had a relatively small cap on the amount of large-scale projects that would fall into Act 236. And since 2014, the industry has grown quite significantly. In the last eight years, the cost of the technology has decreased by over 86 percent.

We are extremely competitive. As you saw on one of my slides, the geographical map, 31 states, we're seeing across the country that mandates aren't needed for us to enter into. We're signing very low-cost competitive avoided-cost rates. And I think, with that, an increased amount of development has occurred, as we are seeing in our interconnection queues. And that poses, I think, a lot of challenges to the utilities. It comes in a fast nature.

I think we tried our best to prepare for that, as a State. You know, we agreed upon a new interconnection standard two years ago in anticipation for some of this increased deployment. But I think it's a function of the utilities having to adapt and, quite frankly, so are we as an industry. I think one of the best things about

being in the private sector is we know how to innovate and we know how to spend a dollar best. But some of that alliance is fracturing if we cannot create an atmosphere that's more collaborative, and who is the leader of that collaborative kind of nature. I think we've seen the co-ops in the State try to take that lead and bring utilities to the table, bring associations like the Solar Business Alliance.

So I guess, increased competition I think is some of what is happening in a regulated state, and more independent power producers — there are seven here, but I mentioned in the Solar Business Alliance we have 50 companies. Not all of those companies are independent power producers, but a lot of them are. And that is a concern, I think, for the utility, quite frankly. And if I were a utility, it would be a concern, as well.

But I think we have chances to be collaborative. These interconnection issues, I really don't see many reasons why we cannot solve a lot of these problems together. We brought storage up, and I think you'll continue to hear that. That's one way. And the best part about all this is that the price signal, if it is set properly,

like Dr. Johnson was mentioning, we have to respond to that. And if we can't and we can't deliver the energy capacity needs at that price, then we're not awarded a contract. And we don't make a single dollar until we send a kilowatt-hour of electricity to the grid.

So we bear all those costs and burdens, and I think that's just a fundamental shift throughout the nation. And that's — you know, that's why we've seen a lot of markets go to deregulated markets; you kind of just allow a lot of competition. We're not recommending that here for South Carolina. I think we can work on a better solution, but I think we need a strong advocate to bring all the parties back to the table again.

COMMISSIONER HAMILTON: So you think the problems that we have now exceed the ability to be solved in the alliance.

MR. BRET SOWERS [SO. CURRENT]: No, I think we can solve them in the alliance. Yes, absolutely. I think we have to have a reset in the State.

COMMISSIONER HAMILTON: Sounds like today would be a good day for a reset.

MR. BRET SOWERS [SO. CURRENT]: Could be.

COMMISSIONER HAMILTON: Thank you.

Thank you, Mr. Chairman.

CHAIRMAN WHITFIELD: Thank you, Commissioner Hamilton.

Again, I would remind everybody, we're a little bit over the timeframe that Mr. Whitt had laid out and that we had anticipated, but I do understand that Commissioner Elam has one quick question, and we are digging into the other panel's time a little bit, so let's do try to wrap it up.

COMMISSIONER ELAM: Dr. Johnson, did I understand you to say that you believe South Carolina ratepayers need to be bearing more of the risk of the development of solar than they are currently?

DR. BEN JOHNSON [BEN JOHNSON ASSOC'S]: No. I was probably talking too fast. I was trying to stress that South Carolina ratepayers bear none of the risk of solar, whereas they continue to bear all of the risk of gas- and coal-fired plants. The nature of the system is just fundamentally different.

COMMISSIONER ELAM: Okay. Thank you.

CHAIRMAN WHITFIELD: Thank you, Commissioner Elam.

I don't think there's anything further. I do

think you've had a — you've certainly had a very informative panel; all three of you have been great panelists. And I do think that the Commissioners probably do have some other questions that maybe you could, in a future allowable ex parte, maybe you could come back. But I know that some of the presentations have sparked a lot of interest, and we certainly appreciate the perspective all three of you — particularly, a couple of you — have expressed, between the two states, since we do have overlapping jurisdictions by a couple of utilities with North Carolina. And then also you referenced the PJM territory in North Carolina. Anyway, we certainly appreciate that perspective.

However, before you do step down, I do have one quick, pointed question, I believe for you, Mr. Sowers, and I think it's going to be a quick answer. You referenced $5.2 billion investment — planned investment in South Carolina. By what timeframe do you expect to — when do you expect to hit that $5.2 billion investment in South Carolina?

MR. BRET SOWERS [SO. CURRENT]: So, a lot of it depends on the jurisdiction in which it's in. As we mentioned — I'll try to keep this brief.

CHAIRMAN WHITFIELD: Yes.

MR. BRET SOWERS [SO. CURRENT]: — the interconnection process is critical to when that investment comes into the State. We've seen some of it already occur, in certain jurisdictions where the interconnection standards are being followed routinely and succinctly, in time, and other jurisdictions where that has not occurred. If we follow the interconnection standards as described today and their timelines, you will see that $5.2 billion come into South Carolina over the next three to four years.

CHAIRMAN WHITFIELD: Less than five years.

MR. BRET SOWERS [SO. CURRENT]: Correct.

CHAIRMAN WHITFIELD: All right. Well, thank you. That's all I have. And, again, I'd like to thank all three of you. It's been very informative. And you may step down. I'll let Mr. Whitt call his next panel.

[WHEREUPON, Messrs. Sowers and Snowden and Dr. Johnson stood aside.]

MR. WHITT: Thank you, Mr. Chairman. We'll call Paul Esformes, who is with EcoPlexus, and we'll call Steve Levitas, who is with Cypress Creek.

CHAIRMAN WHITFIELD: Mr. Whitt, I'm sorry.

Our court reporter does need just a brief two-to-three-minute break. They can come forward and get set up, and we'll resume just after a few minutes, but we do need to allow for a break, for her, just for a minute or two.

[WHEREUPON, Messrs. Esformes and Levitas came forward.]

[WHEREUPON, a recess was taken from 3:50 to 3:55 p.m.]

CHAIRMAN WHITFIELD: Mr. Whitt, before you start with your next panel, the Commission does want you to know that we find this – all of us find this very informative. And, again, we apologize for having to be brief, not only with our questions but making your panelists – and I know you had laid the outline out yourself; it's nothing we requested. But I do want you to know the Commission is very interested in your presenters, and that perhaps, maybe at a future time, there could be another one to follow up. I know it's been about a year since we've had at least one or two of them here, and perhaps you could work with staff to do a follow-up, because they have brought a wealth of information and you've had a lot of panelists, and perhaps we could do something in the

future. But the Commission does want to relay that to you, and we are eager to hear from your remaining panelists, and we thank you for putting this together.

MR. WHITT: Thank you, Mr. Chairman. I guess we were doing annual; maybe we need to do semiannual, and maybe do one in the fall. So we'll certainly consider that, and we appreciate your time. And, certainly, the time is important for my clients, but we were trying to recognize that we understood that the court reporter had a long drive and had a night, last night. So we do appreciate your time, though.

We have Paul Esformes from EcoPlexus and Paul Levitas from Cypress Creek.

CHAIRMAN WHITFIELD: Thank you.

Mr. Esformes, I guess if you want to go first, go ahead with your presentation.

MR. PAUL ESFORMES [ECOPLEXUS]: Thank you, Mr. Chairman. Thank you, Commissioners, for the opportunity to be here to speak with you about issues of importance to my company and two other developers within the industry.

CHAIRMAN WHITFIELD: Mr. Esformes, could you pull that microphone just a little bit closer,

please?

MR. PAUL ESFORMES [ECOPLEXUS]: [Indicating.] My name is Paul Esformes. I'm an attorney with EcoPlexus, Incorporated, a utility-scale developer with projects throughout the country, as well as South Carolina. I'm based in our Durham, North Carolina, office, and the company is headquartered in San Francisco.

[Reference: Presentation Slide 18]

So, I wanted to start by backing up a few steps just to focus briefly in one of the issues of critical importance to developers in our industry, and that is the length of contracts. Having a contract of sufficient term can be one of the primary factors that determines whether a project is financeable and whether it gets built in the first place.

It is worth remembering that the vast majority of the power purchase agreements that are signed with utilities are financed by third parties. And while it may be just the utility and the developer at the table, the developer is represented by banks and lenders who also have their own standards that they are working towards. So, quite simply, a longer-term loan allows the developer to generate

enough capital to pay off debt and accumulating interest while still supporting the ongoing O&M, or operating and maintenance. So all other things being equal, lenders are willing to offer less expensive debt for a contract with a longer PPA term.

The graph on the right-hand side of that slide just shows the direct correlation between contract term and the rate of return for the investor. The investor needs a certain amount of return to make the investment worthwhile to go forward. So, in other words, a longer-term contract is not just nice to have, it's effectively a minimum requirement for a project to go forward. And that's borne out in practice, both for our company and throughout the industry. Of the roughly 75 projects that we've financed in five states, the average term is approximately 23 years. So, nationwide, based on some survey information, only a small fraction of projects nationwide have a PPA term of less than or equal to 10 years, and the vast majority have terms of 15 years or more.

[Reference: Presentation Slide 19]

And then I wanted to just bring up one refrain that we hear from utilities: that a longer-term PPA

exposes ratepayers to the risk that energy prices may go down in the future. There seems to be a concern about locking ratepayers into so-called high-price contracts. I think this is based on some misconceptions and misses the boat on the exact risks that are out there.

So, energy prices are, admittedly, very volatile and driven by a number of external factors. And, quite simply, a longer-term contract hedges against price volatility both on the upside and the downside. Moreover, PPAs that are signed through the PURPA process are, by definition, cost-competitive or cost-effective because they are at or below the avoided cost.

[Reference: Presentation Slide 20]

So, looking ahead to innovative programs to bring more renewable energy to customers in South Carolina, one thing we wanted to highlight for you – and my colleague, Steve Levitas will be discussing that in further detail – is a green tariff or a green source rider. It's a program that allows customers to elect to have a higher rate of renewable energy purchased through the utility on their behalf. It's currently being considered by the South Carolina Legislature in

Bill No. 987. Typically, it's used by large customers, such as a corporate client – a Google or a Facebook – but it can be offered to any size customers.

It offers a number of benefits for ratepayers, as well as utilities and developers. First and foremost, it's a voluntary program. It allows customers that choose to, to go above and beyond the renewable mix that's offered by the utility and to choose more. It works within the existing utility-customer relationship, which is quite important. It uses the purchasing power and expertise of the utility, their buying power, the size of the load that they are purchasing. It also uses the existing billing relationship that the utility has with the customer. And it's transparently priced, because it's done through rates. So the customer can see, on a monthly basis, how much additional amount they're using to purchase for that program. And, again, because it's a voluntary program and it is defined through rates, there's no cost shift to customers who do not participate in the program, or choose not to do so.

[Reference: Presentation Slide 21]

This next slide just has a map of nationwide programs that are offering a green tariff. It's currently being offered in 15 states. This information is as of a month ago, I believe. And the darker green states are states where the programs have been implemented and PPAs directly for the program have been signed. The crosshatched states are ones where it's been implemented but the PPAs are still pending, have not yet been signed.

[Reference: Presentation Slide 22]

So, moving on to one more innovative program. You've heard already today about the opportunities with energy storage. It's certainly one of the prime candidates. It's a common refrain in the industry that storage is what solar was 10 years ago. And that was true five years ago when storage was primarily associated with pilot programs in research and development, and the focus was on containing the costs associated with it. It's also true today, where storage and, particularly, solar plus storage is increasingly becoming a preferred resource, and the scale of the implementation and the developments of projects that are coming on-line is growing dramatically.

The middle of that slide just highlights a

number of the potential use cases for storage. Dr. Johnson explained the basic principle of storage being able, when coupled with solar, to be able to draw from the system at one time of day and discharge into the system at another. There are a number of other use cases for different types of customers. For instance, backup power for large commercial facilities, micro-gridding for a remote community, voltage support and control.

Storage is still being studied and developed, and the technology is increasing dramatically, and the use cases are also increasing along with that. There are a number of different customers.

That said, there are a number of challenges still out there, both technical, economic, as well as regulatory. I believe Dr. Johnson touched on a number of the technical factors in his presentation, as well.

[Reference: Presentation Slide 23]

I won't go into too much detail on this slide, but it shows the dynamic on the left-hand side that Dr. Johnson was explaining, of solar plus storage and how that can draw from the system in low-value hours and then discharge into the system in high-value hours, effectively acting as both demand and

supply. And that can address the ramping period, which we see in states like California, with high solar penetration, to address the duck curve. It's also being looked at to replace new peaker plants, whether that's natural gas or coal, and then to retire existing plants for that same purpose.

[Reference: Presentation Slide 24]

A few statistics for you, just on the rapid growth of energy storage: Annual installations grew from just 340 megawatts in 2013 and 2012, to 6 gigawatts in 2017. That's projected to rise to 40 gigawatts by 2022. That adoption is driven by the declining technology costs, but also by state policy and state regulations. At the national level, FERC Order 841, which was issued just recently, instructs the RTOs and ISOs to remove the barriers in the wholesale markets for energy storage to be able to participate.

At the state level, a recent survey showed that 32 states took some action on energy storage in just 2017 alone, and that can range anywhere from further study to investigate the opportunities, all the way to mandating procurement of energy storage. So there are a lot of

opportunities out there for states to have a role in driving that innovation.

[Reference: Presentation Slide 25]

Now I'd like to turn it over to our next presenter.

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: Good afternoon. Let me get turned on here [indicating].

CHAIRMAN WHITFIELD: Yes, sir, Mr. Levitas.

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: Good afternoon, Mr. Chairman, members of the Commission. I'm Steve Levitas. I'm the senior vice president for Regulatory Affairs and Strategy, with Cypress Creek Renewables. Cypress Creek is one of the largest utility-scale developers in the country and one of the most active developers here in South Carolina and across the Southeast.

You've heard about a number of the issues and challenges that we face as an industry, doing business here in the State. I want to finish our presentation by talking about a couple of solutions, solutions in the form of two pairs of bills, companion bills, that are currently pending in the South Carolina General Assembly.

The first pair of those bills is Senate Bill

890 and its companion House Bill 4796. These are bills that deal with the State implementation of the federal PURPA law, the Public Utilities Regulatory Policy Act, which Mr. Snowden mentioned earlier in the program and I'm sure you're all familiar with to some extent.

In a nutshell, what PURPA does is to require electric utilities to buy the output of certain, quote, "Qualifying Facilities," which are mostly cogeneration and renewable facilities below 80 megawatts. So it requires that the utilities buy our output at what is called avoided cost. And that's what Dr. Johnson spoke about. And the purpose behind PURPA was a recognition by Congress several decades ago that there was significant value in incentivizing the development not only of these alternative energy resources but also of independent power production to create more competition and more market participation than we've had with our traditional monopoly control of generation across much of the country, historically.

So the other important thing to say about PURPA is that it was intentionally conceived as a collaborative regulatory regime between federal

government and the states. So the basic contours and ground rules of PURPA are established in the legislation itself in Congress and by FERC in implementing – Federal Energy Regulatory Commission – in implementing orders and rules, but then a good bit of the detail is left to you and your counterparts across the country as state regulatory bodies to flesh out and implement PURPA in accordance with the federal guidance. And among the most important aspects of your job in that federal-state partnership is the establishment of the avoided cost, which Dr. Johnson described, which is essentially what we get paid for the power that we put on the grids of utilities.

So what will these bills do? The first thing – and I'm sorry. I've got a slide that helps answer that question.

[Reference: Presentation Slide 26]

The first thing that these bills would do would be to formalize the process by which you, as the Commission, would establish avoided cost, and that would be both the methodology for determining avoided cost, which is a complex subject – you all have devoted a good bit of time to that, but there's several different approaches that are

recognized. So there's a threshold question of what should the methodology be, and then applying that methodology to establish the actual avoided-cost rates that get paid to what are called the standard-offer projects.

And the slide doesn't mention, but in the legislation it's proposed that those — across the board, that that standard-offer threshold be 5 megawatts. So for 5 megawatt projects, every two years, you would set the rates; those rates would be in place for two years. For other projects above the 5 megawatt threshold, the same methodology that you would establish would be used to determine the rates, but they would be adjusted on an ongoing basis, rather than it being fixed over that two-year period. There would — I said fixed over the two-year period; the methodology would be fixed, but actually the legislation also provides that the inputs — so natural gas prices and costs of other plants — would be updated on a biannual basis. So you deal with the methodology and then you kind of refresh every two years, and then every six months, as, for example, at least one of the utilities I know currently does that in South Carolina today, they would come in and update

the inputs that go into that methodology. So the idea is to get a clear set of rules and guidelines for implementing this program so that everybody knows how it's going to work for all the utilities in the State.

Another important element, moving down to the next part of this slide, of what the legislation would do on this, would be to have you, as the Commission, as the overseer of this process, approve standard contracts and make a determination as to the terms that are commercially reasonable that would be in those contracts. And that's a really big issue for our industry, because, frankly, we have one buyer on the other side of our transaction. And it's a very large, powerful buyer. And they hold all the cards in the negotiation of what those contract terms would be. So we think, and the legislation reflects the belief, that it's very important to have commission oversight of those contract terms, to be sure that they are fair and reasonable to all parties.

In addition to speaking to the issue that Mr. Esformes raised, the legislation also provides that the length of those contracts would be set at 15 years. So right now, in South Carolina, there's

not, across all utilities, a standard default contract length to ensure that these contracts are financeable. And I will just add that FERC – the Federal Energy Regulatory Commission – has established as one of those federal principles that state commissions have to comply with, is that the contracts have to be – this is – I'm quoting pretty much directly – a PURPA contract has to be of sufficient length to give the Qualifying Facility a reasonable opportunity to attract capital to build its project. And so, Mr. Esformes had that slide showing how contract length drives rates of returns and, thus, financeability and your ability to get an investor to invest in a project.

Finally, with respect to these bills, there are several provisions that go to another federal PURPA requirement of nondiscriminatory treatment of QFs. So the three items I have noted there, one is that there be limitations on the utility's ability to curtail the output from our solar facilities. It's critically important to us that we know we're going to be able to sell the output and get paid for it, in order to be able to finance it. And PURPA does establish, by legislation and rule, very strict limitations on the circumstances under which

a utility can curtail QF output. We want to be sure that that federal law is implemented here in South Carolina, and that's what the legislation would do.

Secondly, Mr. Snowden talked about the problem with interconnection delays, and the fact that circumstances that are completely beyond our control could cause us to be unable to meet deadlines that are in contracts, possibly be in default, possibly face damages, possibly lose the benefit of rates that we qualified for and believed we were eligible for and made our development investments on the basis of those rates. And, so, an additional provision of these bills would be that the QFs could not be held responsible for these interconnection delays beyond their control.

And then, finally, there's a provision in the bills that says that the avoided-cost rates can't be reduced just because the power that comes from our facilities is intermittent in nature. There's been some proposals to that effect. And the concern there is that, yes, there's the possibility that intermittent power could have some cost to the system, but there are a whole range of benefits that these solar facilities provide to the system

that are not considered as part of the avoided-cost calculation and the contract price, either. So the legislation wouldn't allow that one possible impact for cost to be singled out for special treatment and used to reduce the price that would be paid under these PPAs.

[Reference: Presentation Slide 27]

So turning now to the second pair of bills — Senate Bill 987 and House Bill 5001 — these bills address exactly the green source program that Mr. Esformes talked about. And just to reiterate what he said, what's going on with this concept and with these bills is figuring out a way to meet the huge demand from commercial, industrial, institutional customers, all of whom are clamoring for green energy.

You read the newspapers, you know that a huge percentage of Fortune 100 companies insist, have as corporate principles, that they are going to be powered by green energy. That's true of academic institutions, and their students are pressuring them to go green and have clean energy. And the problem is that, in a regulated market like South Carolina, where a customer can't buy directly from a generator of green energy like us, the only way

that they can accomplish their corporate goals – and I would submit to you, the only way that they're going to come do business in South Carolina in the future – is if you give them another pathway to be able to claim that their facilities are powered by green energy.

And through policy development, as Mr. Esformes said, in a number of states across the country, a very elegant mechanism has been developed that everybody agrees, I think, works to accomplish this goal. And it's really a three-way arrangement where, essentially, it works like this – and I've got a little graphic at the end that maybe will make it easier to follow. But the way it works is this – and this is all laid out in the legislation. The customer goes to a company like any of ours, and makes an arrangement and says, "I want to have your output dedicated for my use." So we're going to sell it to the utility. I'm still going to buy from the utility, but your output will be earmarked, dedicated, for my use. And I, as the customer, will be able to negotiate the price that I pay for that, as well as the length of the term of my contract. And so the parties will enter into this three-way arrangement where, as I said, the

customer is still buying its power from the utility. It has this agreement with the renewable energy supplier who's selling its output to the utility.

The bill provides that these arrangements, these three-way contracts, could be between two and twenty years, at the option of the customer. And the way it basically works — it's a little complicated — the customer would continue to pay its full retail rate. And that's really important, because what that means is the rest of the ratepayers, of the consuming public, would not be affected in any way, because the customer would continue to pay into the system the full amount of its portion of the utility revenue requirements, based on the established rates. But what would happen is the customer would also pay the price of our PPA but then get a bill credit back based on the utility's avoided cost.

So where we are willing to contract and sell our power below that avoided-cost number, there's a savings that can accrue to the customers. And I can promise you this is very important to these large users who want to come locate in your State. If, on the other hand, our PPA price were above the

avoided-cost rate, in that circumstance the customer would have to pay a premium.

There are a few other details of the program set out on the right side of this slide. Again, as with the other set of bills, the PURPA bills, this bill would provide for you, as the Commission, to establish approved standard terms and conditions for these contracts.

I mentioned in the third bullet that the utility can't charge nonparticipating customers in any way; they are held harmless. The participating customer would be limited to 125 percent of its most recent annual energy usage, and there is a cap in the legislation so that once the utility hit 10 percent of its five-year average through these types of programs, the program would be suspended, or its obligation to expand the program would end.

And then, just quickly, to maybe make this a little bit clearer –

[Reference: Presentation Slide 28]

– this graphic just shows the three-way relationship that I described. So, you start at the bottom: The renewable energy supplier and the participating customer reach an agreement about price and contract length. The utility then enters

into a power purchase agreement relationship with the renewable energy supplier at that agreed-upon price. And the customer then pays, as I said — that orange line — is paying its existing retail rate. It also pays the full price, the green of the bundled PPA price, but then gets that avoided-cost generation credit back, and then pays a modest administrative fee.

This is a mechanism that is being implemented or looked at in many, many states across the country, including North Carolina where there are active proceedings to implement a new green source program. And I would submit to you that, as long as this is going to remain a regulated market where renewable suppliers cannot sell directly to large retail customers, it's extremely important that this type of program be implemented to meet the needs of your large customers and companies who want to come do business here.

So I will stop there. Thank you very much. We'll be happy to take any questions.

CHAIRMAN WHITFIELD: Thank you, Mr. Levitas and Mr. Esformes.

At this time, we'll take a few minutes for Commissioner questions. Commissioners, questions

for these two panelists? Commissioners?

COMMISSIONER FLEMING: Yes.

I wanted to ask you if you could go into a little bit more detail on the bill about utility delays, the interconnection delays that the solar company or — or the PPAs, I guess — not the PPAs, but the independent power producers would not be, I guess, penalized for the delay. So, could you explain how that goes? I mean, are you saying that you'll still be in your same position in the queue? What will you do about — if you're delayed, you're still not getting money, so what is going to happen there? Could you just talk a little bit about what that means and how you think it's beneficial to you, and what you expected to get out of it?

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: Sure. Thank you for that question, Commissioner Fleming. The bill is not a complete solution by any means to the problems that Mr. Snowden outlined with respect to interconnection delays. So it actually does nothing to try to change the interconnection standards, to expedite processing or to create tighter timelines or create any sort of penalties for failure to process in a certain time. So, it deals with a very — the narrow issue

of the potential adverse consequence to us of these interconnection delays. And Mr. Snowden outlined what those potential consequences are.

The bill actually does not deal with that issue of the potential loss of a rate, so one big concern that we have is that there's a rate in effect, but there's a length of time associated with that, and we could potentially lose eligibility for that rate because the clock gets run out through these long interconnection delays.

But what the bill does address are the other two problems that Mr. Snowden mentioned, which is the possibility that you've got a contract and one of the contract terms says, "Thou shalt have this project delivering power to the grid by December 31st, 2018," and we've done everything we can do — we've designed the project, we've obtained the financing, we have the panels ordered, maybe sitting in the port, and we're ready to go to work and build this, and we're waiting and we're waiting and we're waiting for interconnection, for the study to be complete or for interconnection facilities to be constructed. And so what the bill addresses in the scenario, in that case, is the worst of all possible worlds, to add insult to

injury, would be for the utility to be able to come to us and say, "You didn't make the deadline. We're terminating your contract and we're subjecting you to huge damages because you didn't deliver this project on time." So what the bill would say is they can't do that, where the reason that we miss a deadline is because of their own interconnection delays.

COMMISSIONER FLEMING: But they can do that today.

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: That's right.

COMMISSIONER FLEMING: And I'm going to ask – I've heard – well, and it's been stated in hearings here before, that there are not delays with one of our companies, so are most of your concerns with these interconnections primarily with another company?

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: Well, I believe we've been instructed not to talk about specific companies, but –

COMMISSIONER FLEMING: Well, we're not.

[Laughter]

All right, let me – I'll think about how I can ask this.

[Pause due to electronic technical difficulty]

MR. WHITT: Mr. Chairman, can we just say that that question's – we appreciate all of your questions, but that's better left for a specific hearing?

CHAIRMAN WHITFIELD: Okay.

Commissioner Fleming, I believe – we're sorry for the technical difficulty there. Commissioner Fleming, I think, was still questioning you. Do you have any further questions for this panel, Commissioner Fleming?

COMMISSIONER FLEMING: No, I think these bills address the issues across the board, correct?

MR. STEVE LEVITAS [CYPRESS CREEK RENEWABLES]: That's correct.

COMMISSIONER FLEMING: Thank you.

CHAIRMAN WHITFIELD: Thank you, Commissioner Fleming.

Any other questions from Commissioners, from this last panel?

[No response]

Well, if not, again, very informative, as was the first panel, and we thank you for your presentations and bringing this information to us. And you may step down.

[WHEREUPON, Messrs. Esformes and Levitas stood aside.]

And I'll turn it back to Mr. Whitt.

MR. WHITT: Thank you, Mr. Chairman and members of the Commission, Ms. Wheat, and Andrew Bateman. Thanks to everyone for your time, and we would request a transcript of this hearing.

CHAIRMAN WHITFIELD: So noted, Mr. Whitt.

And, Mr. Bateman, is there anything further from ORS?

MR. BATEMAN: Nothing from ORS.

CHAIRMAN WHITFIELD: If nothing further, this allowable ex parte briefing is adjourned. And Mr. Woods reminds me, for each and every one of you in attendance today, to please make sure you give him your signed sheet back before you leave this room. And he, along with ORS Staff, will be certifying — he will be getting that to ORS to certify. So please make sure that we are in compliance with all allowable ex parte briefing laws.

And thank you. Briefing adjourned.

[WHEREUPON, at 4:30 p.m., the proceedings in the above-entitled matter were adjourned.]

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had in an Allowable Ex Parte Proceeding held before THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA in Columbia, South Carolina, according to my verbatim record of same.

IN WITNESS WHEREOF, I have hereunto set my hand, on this the 15th day of March, 2018.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.